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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,626	07/28/2005	Gian Luca Araldi	SNI-003US	3939

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EXAMINER	
NOLAN, JASON MICHAEL	

ART UNIT	PAPER NUMBER
1626	

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/517,626	ARALDI ET AL.	
	Examiner	Art Unit	
	Jason M. Nolan, Ph.D.	1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46 and 49-60* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-46 and 49-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/10/2004 & 02/25/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-46 & 49-60 are currently pending in the instant application. **Claims 3, 4, 9, 17, 18, 41, 42, 45, 46, 49, 50, 54 & 55** have been amended; **Claims 47 & 48** have been cancelled.

Priority

This application is a 371 of PCT/US03/18202, filed on 6/9/**2003**. Acknowledgement is made of Applicants' claim for benefit of US Provisional Patent Applications 60/387,340, filed on 6/10/**2002** and 60/451,804, filed on 3/3/**2003**. Said claim has been made in the ADS and/or in the first paragraph of the Specification.

Information Disclosure Statement

Applicants' information disclosure statements (IDS), filed on 12/10/2004 and 2/25/2005 have been considered. Please refer to Applicants' copies of the 1449 submitted herein.

Claim Rejections - 35 USC § 102

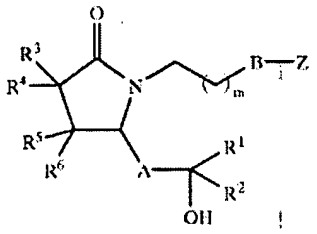
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-46 & 49-60 are rejected under 35 U.S.C. 102(e) as being anticipated by Elworthy *et al.* (WO 2003008377 A1, 01/30/**2003**; see US Patent **6,900,336**; priority

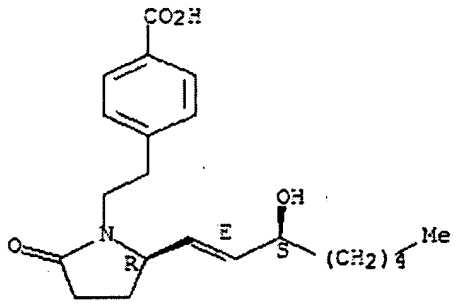
to US Provisional Serial No. 2001-305,727, filed on 7/16/**2001**; see IDS). Taught in the reference is a family of compounds comprising a pyrrolidinone core, wherein the nitrogen is substituted with an alkyl-aryl or alkyl-heteroaryl and the 5-position of the core is alkyl-hydroxy substituted, (shown below as formula I). Also shown below is compound RN 493036-24-1, which directly anticipates the instantly claimed invention. The pharmaceutical compositions of the **'336** Patent are useful for treatment of a disease in a mammal that is treatable by the administration of a selective EP_4 prostaglandin agonist (Claims 23-25) such as those mentioned in the specification (columns 1 & 2).

What is claimed is:
1. A compound comprising Formula I:



wherein:
A is $—CH_2—CH_2—$, or $—CH=CH—$;
B is absent, aryl, or heteroaryl;

RN 493036-24-1



Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 51 is rejected under 35 U.S.C. § 112, first paragraph, because the specification, while being enabling for pharmaceutically acceptable salts of compounds according to the invention, does not reasonably provide enablement for prodrugs of the invention. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

In the case *In re Wands*, 8 USPQ2d 1400 (1988), factors to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. § 112, first paragraph, have need described. They are:

1. the nature of the invention,
2. the state of the prior art,
3. the predictability or lack thereof in the art,
4. the amount of direction or guidance present,
5. the presence or absence of working examples,
6. the breadth of the claims,
7. the quantity of experimentation needed, and
8. the level of the skill in the art.

In the instant case,

The nature of the invention

The nature of the invention in **Claim 51** is a method of treating a fertility condition in a female using a prostaglandin EP3 receptor agonist or pharmaceutically acceptable salts and prodrugs thereof.

The state of the prior art and the predictability or lack thereof in the art

The state of the prior art is that prodrugs are an inactive form of a drug that exerts its effects after metabolic processes within the body convert it to a usable or active form. In other words, a prodrug is a drug that must be activated before it can produce a physiological effect. Prodrugs are designed to be appended to a particular functional group such as a carboxylic acid, alcohol, amine, phosphate, or phosphonic acid. Research is required to match the prodrug with the particular drug to overcome challenges including stability, rate of systemic prodrug cleavage, and safety. Furthermore, it needs to be decided what enzyme system is wanted to cleave the prodrug followed by the evaluation of the prodrug analogs in assays to measure progress in achieving the desired properties (stability, solubility, cleavage of prodrug in biological matrices, pharmacokinetics in animal models, efficacy in animal models, and safety in animal models). This process is exactly like the process used to discover the active drug. The difficulty of discovering effective prodrugs is often underestimated and for all of the aforementioned reasons, the claimed invention is highly unpredictable.

The amount of direction or guidance present and the presence or absence of working examples

The direction or guidance present in the instant specification is limited to the compounds of the invention and their pharmaceutically acceptable salts. With respect to prodrugs, there is a definition on page 25, line 26. There is no guidance in the specification for the preparation of prodrugs or working examples to determine functional group preference.

The breadth of the claims

The breadth of the **Claim 51** is broader than the disclosure, specifically, the instant claims include any prodrugs; i.e. any compound of the invention with various functional groups.

The level of the skill in the art and the quantity of experimentation needed

The level of skill in the art is high. However, due to the unpredictability in the pharmaceutical art, it is noted that discovering effective prodrugs is often underestimated and the process mimics the process conducted to discover the active drug. Thus, the specification fails to provide sufficient support for the broad use of a prodrug of a compound according to the invention.

Genentech Inc. v. Novo Nordisk A/S (CA FC) 42 USPQ2d 1001 states, "a patent is not a hunting license. It is not a reward for search, but compensation for its successful conclusion" and "patent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable".

Therefore, in view of the Wands factors and *In re Fisher* (CCPA 1970) discussed above, to practice the claimed invention herein, a person of skill in the art would have to engage in undue experimentation to test which prodrug design (functional group manipulation) will work for this class of compounds to determine if they would be encompassed in the instant claims, with no assurance of success.

This rejection can be overcome by deleting the unsupported language.

Claim Objections

Claim 55 is objected to because of the following informalities: The drawing of formula VI contains a double bond (at variable **B**), and the bond is referred to as a dotted line in the text of the claim. Appropriate correction is required.

Telephone Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jason M. Nolan, Ph.D.** whose telephone number is **(571) 272-4356** and electronic mail is **Jason.Nolan@uspto.gov**. The examiner can normally be reached on Mon - Fri (9:00 - 5:30PM). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Joseph M^{c}Kane** can be reached on **(571) 272-0699**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

REBECCA ANDERSON
PATENT EXAMINER

Jason M. Nolan, Ph.D.
Examiner
Art Unit 1626

Joseph K. M^{c}Kane
Supervisory Patent Examiner
Art Unit 1626
Date: December 8, 2006